REMARKS/ARGUMENTS

Claims 8, 9, 11-14, and 25 are pending in this application. By this Amendment, Applicant cancels Claims 6, 7, 10, and 15-24, amends Claims 8, 9, and 11-14, and adds Claim 25.

Claims 6-24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Taniguchi (US 2003/0214368) in view of Nakagawara et al. (JP 2002-353769) and Yoshida et al. (US 2001/0013739). Claims 6, 7, 10 and 15-24 have been canceled. Applicant respectfully traverses the rejection of Claims 8, 9, and 11-14.

Claim 8 has been amended to recite:

> A duplexer, comprising:
> a transmission-side band filter including a plurality of surface acoustic wave resonators connected together to define a ladder circuit;
> a reception-side band filter including a plurality of surface acoustic wave resonators connected together to define a ladder circuit; wherein
> each of the plurality of surface acoustic wave resonators of the transmission-side band filter and the reception-side band filter includes a 47° to 58° rotated, Y-cut, X-propagating $LiNbO_3$ substrate and an IDT electrode provided on the $LiNbO_3$ substrate;
> the IDT electrode includes a Ti foundation electrode layer disposed on the $LiNbO_3$ substrate and an Al electrode layer disposed on the Ti foundation electrode layer; and
> a (111) face of the Al electrode layer, one of a (001) face and (100) face of the Ti foundation electrode layer, and a (001) face of the $LiNbO_3$ substrate are aligned in parallel;
> where the Ti foundation electrode layer is an epitaxially grown electrode layer on the $LiNbO_3$ substrate and the Al electrode layer is an epitaxially grown electrode layer on the Ti foundation electrode layer;
> **in the reception-side band filter, a first inductance is disposed in parallel with respect to at least one serial arm resonator connected to a serial arm of the ladder circuit among the plurality of surface acoustic wave resonators, and in the transmission-side band filter, a second inductance is disposed between a parallel arm resonator connected to a parallel arm of the ladder circuit among the plurality of surface acoustic wave resonators and a ground potential; and**
> **the second inductance is defined by a line embedded in the duplexer**. (emphasis added)

With the unique combination and arrangement of features recited in Applicant's Claim 8, including the features of "in the reception-side band filter, a first inductance is disposed in parallel with respect to at least one serial arm resonator connected to a serial arm of the ladder circuit among the plurality of surface acoustic wave resonators," "in the transmission-side band filter, a second inductance is disposed between a parallel arm resonator connected to a parallel arm of the ladder circuit among the plurality of surface acoustic wave resonators and a ground potential," and "the second inductance is defined by a line embedded in the duplexer," Applicant has been able to provide a duplexer including a plurality of surface acoustic wave elements in which not only the electric power resistance can be increased but also the out-of-band attenuation and the isolation characteristic can be set to a satisfactorily large value (see, for example, paragraph [0011] of the Substitute Specification).

The Examiner alleged that Taniguchi teaches all of the features recited in Applicant's Claim 8, except for the features of a 47° to 58° rotated, Y-cut, X-propagating $LiNbO_3$ substrate, and a Ti foundation electrode layer below an Al electrode layer each being epitaxially grown and having the specific recited faces aligned in parallel. The Examiner further alleged that Nakagawara et al. teaches a Ti base electrode layer 5 and an Al electrode layer 4 on the Ti base layer 5, wherein the (111) face of the Al layer, the (001) or (100) face of the Ti layer and the (001) face of the $LiNbO_3$ substrate 2 are all aligned in parallel, and that Yoshida et al. teaches a 55° rotated, Y-cut, X-propagating $LiNbO_3$.

Thus, the Examiner concluded that it would have been obvious "to have modified the SAW duplexer of Taniguchi (Fig. 1) by having provided it with electrodes including a base layer of epitaxially grown Ti with a layer of epitaxially grown Al thereon with the (111) face of the Al layer, the (001) or (100) face of the Ti layer and the (001) face of the lithium niobate substrate aligned in parallel" to provide the benefit of increased power handling performance.

The Examiner further concluded that it would have been obvious "to have

substituted a 47-58 degree, and specifically a 55 degree Y-cut, X-propagating lithium niobate substrate in place of the standard 64 degree lithium niobate substrate of each of Taniguchi and Nakagawara, because such a modification would have been the mere substitution of art recognized alternative piezoelectric substrates, and because Nakagawara explicitly suggests that the advantageous epitaxially grown electrodes would have been applicable to other cut angles of lithium niobate substrate (see section [0047] [of Nakagawara], and because, as suggested by the exemplary teaching of Yoshida, a 55 degree cut angle of lithium niobate would have been advantageous due to low insertion loss and broader bandwidth of the SAW device formed thereon as explicitly suggested by Yoshida (see e.g. section [0074] [of Yoshida]."

The Examiner alleged that the reception-side filter of Taniguchi includes an inductance L1 or L2 in parallel with one of the series arm resonators, and each of the filters includes a bonding wire that inherently provides a second inductance connected between each of the parallel arm resonators and a ground potential pad T2, T4, T6 of the package.

Applicant's Claim 8 has been amended to recite the feature of "the second inductance is defined by a line embedded in the duplexer." Support for this feature is found, for example, in paragraphs [0066] and [0107] of the Substitute Specification.

In contrast to Applicant's Claim 8, as acknowledged by the Examiner, at best, Taniguchi teaches a bonding wire which inherently provides a second inductance. Since, as shown in Fig. 3 of Taniguchi, the bonding wires of Taniguchi are clearly not embedded in the duplexer, and instead, merely extend between the parallel arm resonators and the terminals T2, T4, T6. Taniguchi fails to teach or suggest that a second inductance could or should be provided by any structure other than the bonding wires, and certainly fails to teach or suggest that a second inductance could or should be embedded in the duplexer. Thus, Taniguchi clearly fails to teach or suggest the features of "in the reception-side band filter, a first inductance is disposed in parallel with respect to at least one serial arm resonator connected to a serial arm of the ladder

circuit among the plurality of surface acoustic wave resonators," "in the transmission-side band filter, a second inductance is disposed between a parallel arm resonator connected to a parallel arm of the ladder circuit among the plurality of surface acoustic wave resonators and a ground potential," and "the second inductance is defined by a line embedded in the duplexer" as recited in Applicant's Claim 8.

Nakagawara et al. and Yoshida et al. were relied upon to allegedly cure various deficiencies of Taniguchi. However, neither Nakagawara et al. nor Yoshida et al. teaches or suggests the features of "in the reception-side band filter, a first inductance is disposed in parallel with respect to at least one serial arm resonator connected to a serial arm of the ladder circuit among the plurality of surface acoustic wave resonators," "in the transmission-side band filter, a second inductance is disposed between a parallel arm resonator connected to a parallel arm of the ladder circuit among the plurality of surface acoustic wave resonators and a ground potential," and "the second inductance is defined by a line embedded in the duplexer" as recited in Applicant's Claim 8. Thus, Nakagawara et al. and Yoshida et al. fail to cure the deficiencies of Taniguchi described above.

Accordingly, Applicant respectfully submits that Taniguchi, Nakagawara et al., and Yoshida et al., applied alone or in combination, fail to teach or suggest the unique combination and arrangement of features recited in Applicant's Claim 8.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of Claim 8 under 35 U.S.C. § 103(a) as being unpatentable over Taniguchi in view of Nakagawara et al. and Yoshida et al.

In view of the foregoing amendments and remarks, Applicant respectfully submits that Claim 8 is allowable. Claims 9, 11-14, and 25 depend upon Claim 8, and are therefore allowable for at least the reasons that Claim 8 is allowable.

In view of the foregoing amendments and remarks, Applicant respectfully submits that this application is in condition for allowance. Favorable consideration and prompt allowance are solicited.

The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1353.

Respectfully submitted,

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